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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,988	02/13/2002	Jiangtao Wang	GD7376US	6876

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EXAMINER	
MENZ, DOUGLAS M	
ART UNIT	**PAPER NUMBER**
2824	

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/074,988	WANG ET AL.	
	Examiner	Art Unit	
	Douglas M Menz	2824	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *1-17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3,6* .
4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☒ Other: *Search History* .

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 18-35 in Paper No. 5 is acknowledged.

Claim Objections

Claim 30 is objected to because it states that it is dependent on "claim 1". This is clearly a typographical error and the Examiner will act on this claim as if it is dependent on "claim 18". Appropriate correction is required.

Claim 35 is objected to because it states that it is dependent on "claim 1". This is clearly a typographical error and the Examiner will act on this claim as if it is dependent on "claim 18". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18, 30-33 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Hosokawa et al. (US 6007652).

Regarding claim 18, Hosokawa discloses a component for use in forming a printed wiring board, comprising:

A carrier substrate (1, Fig. 1);

A separation facilitating layer formed on the carrier substrate (Col. 3, lines: 49-53);

A vapor deposition layer of copper on the separation facilitating layer (Col. 5, lines: 30-35), wherein the vapor-deposition layer protects the separation facilitating layer; and

An electrodeposited layer of copper on the vapor-deposited layer (Col. 5, lines: 36-50).

Regarding claim 30, Hosokawa further discloses wherein the vapor-deposition layer of copper is formed by one of physical vapor deposition, chemical vapor deposition and a combination thereof (Col. 3, lines: 54-59 and Col. 5, lines: 33-35).

Regarding claim 31, Hosokawa further discloses wherein the vapor deposition includes vacuum deposition (Col. 3, lines: 57-58 and Col. 5, lines: 33-35).

Regarding claim 32, Hosokawa further discloses wherein the vapor-deposition layer of copper has a thickness in a range of 50A to 10,000A (Col. 5, lines: 30-40).

Regarding claim 33, Hosokawa further discloses wherein the electrodeposited layer of copper has a thickness in a range of 1um to 35um (Col. 5, lines: 39-46).

Regarding claim 35, Hosokawa further discloses wherein the vapor deposition layer of copper is formed by a combustion chemical vapor deposition process (Col. 5, lines: 33-35).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 18-29 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Kataoka et al. (US 6319620).

Regarding claim 18, Kataoka discloses a component for use in forming a printed wiring board, comprising:

A carrier substrate (Col. 3, lines: 56-66);

A separation facilitating layer formed on the carrier substrate (Col. 4, lines: 25-30);

A vapor deposition layer of copper on the separation facilitating layer (Col. 4, lines: 19-24 and Col. 5, lines: 60-66), wherein the vapor-deposition layer protects the separation facilitating layer; and

An electrodeposited layer of copper on the vapor-deposited layer (Col. 4, lines: 19-24 and Col. 5, lines: 60-66).

Regarding claim 19, Kataoka further discloses wherein the separation facilitating layer includes at least one metal oxide (Col. 1, line 41 – Col. 2, line14).

Regarding claim 20, Kataoka further discloses wherein the metal oxide is selected from the group consisting of: aluminum oxide, tin oxide, chromium oxide, nickel oxide, copper oxide, an oxide of stainless steel and zinc oxide (Col. 1, line 41 – Col. 2, line14).

Regarding claim 21, Kataoka further discloses wherein the separation facilitating layer includes at least one organic material (Col. 3, lines: 40-44).

Regarding claim 22, Kataoka further discloses wherein the separation facilitating layer includes at least one organic material selected from the group consisting of: silane, benzotriazole (BTA), and isopropyl alcohol (Col. 4, lines: 24-55).

Regarding claim 23, Kataoka further discloses wherein the separation facilitating layer has a thickness in a range of 5A to 1000A (Col. 5, lines: 36-43).

Regarding claim 24, Kataoka further discloses wherein the carrier substrate is comprised of copper (Col. 6, lines: 45-50).

Regarding claim 25, Kataoka further discloses wherein the separation facilitating layer is a stabilization layer (Col. 3, lines: 10-30).

Regarding claim 26, Kataoka further discloses wherein the stabilization layer includes chromium oxide and zinc oxide (Col. 1, line 41 – Col. 2, line14).

Regarding claim 27, Kataoka further discloses wherein the carrier substrate is comprised of at least one metal from the group consisting of: aluminum, tin, copper, chromium, nickel, stainless steel and plated carbon steel (Col. 3, line 65 – Col. 4, line 10).

Regarding claim 28, Kataoka further discloses wherein the separation facilitating layer is comprised of a natural occurring oxide of at least one metal comprising the carrier substrate (Col. 1, line 42 – Col. 2, line14).

Regarding claim 29, Kataoka further discloses wherein the separation facilitating layer is a stabilization layer (Col. 3, lines: 10-30).

Regarding claim 34, Kataoka further discloses wherein the carrier substrate has a weight per unit area in a range of 0.5 oz/ft^2 to 3 oz/ft^2 (Col. 3, line 66 – Col. 4, line 12).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent 6492268 discloses the process of chemical vapor deposition of copper followed by electrodeposition of copper for copper wiring.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas M Menz whose telephone number is 703-305-1791. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on 703-308-2816. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

DM
August 11, 2003

RICHARD ELMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800